AD-A033 825 DEFENSE SYSTEMS MANAGEMENT SCHOOL FORT BELVOIR VA F/G 5/1
SUBCONTRACT MANAGEMENT: PROGRAM OFFICE INVOLVEMENT ON COST-PLUS--ETC(U)
MAY 76 L C JACKSON

UNCLASSIFIED NL

| OF |
AD
A033825

END

DATE
FILMED
2-77

DEFENSE SYSTEMS MANAGEMENT SCHOOL

PROGRAM MANAGEMENT COURSE

INDIVIDUAL STUDY PROGRAM

SUBCONTRACT MANAGEMENT:
PROGRAM OFFICE INVOLVEMENT ON
COST-PLUS-INCENTIVE-FEE PRIME CONTRACTS

STUDY PROJECT REPORT
PMC 76-1

Larry C. Jackson
Major USAF

FORT BELVOIR, VIRGINIA 22060

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE

READ INSTRUCTIONS BEFORE COMPLETING FORM

1. REPORT NUMBER

2. GOVT ACCESSION NO.

3. RECIPIENT'S CATALOG NUMBER

4. TITLE (and Subtitle)

SUBCONTRACT MANAGEMENT: PROGRAM OFFICE INVOLVEMENT ON COST-PLUS-INCENTIVE-FEE PRIME CONTRACTS.

5. TYPE OF REPORT & PERIOD COVERED

Study Project Report, 76-1

6. PERFORMING ORG. REPORT NUMBER

7. AUTHOR(s)

Larry C. Jackson

8. CONTRACT OR GRANT NUMBER(s)

9. PERFORMING ORGANIZATION NAME AND ADDRESS

DEFENSE SYSTEMS MANAGEMENT COLLEGE
FT. BELVOIR, VA 22060

10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS

11. CONTROLLING OFFICE NAME AND ADDRESS

DEFENSE SYSTEMS MANAGEMENT COLLEGE
FT. BELVOIR, VA 22060

12. REPORT DATE

May 76

13. NUMBER OF PAGES

57 60p.

14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)

15. SECURITY CLASS. (of this report)

UNCLASSIFIED

15a. DECLASSIFICATION/DOWNGRADING SCHEDULE

16. DISTRIBUTION STATEMENT (of this Report)

UNLIMITED

17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)

18. SUPPLEMENTARY NOTES

19. KEY WORDS (Continue on reverse side if necessary and identify by block number)

SEE ATTACHED SHEET

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

SEE ATTACHED SHEET

408 462

DD FORM 1 JAN 73 1473 EDITION OF 1 NOV 65 IS OBSOLETE

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

STUDY TITLE: SUBCONTRACT MANAGEMENT--PROGRAM OFFICE INVOLVEMENT ON COST-PLUS-INCENTIVE-FEE PRIME CONTRACTS

STUDY PROJECT GOALS:

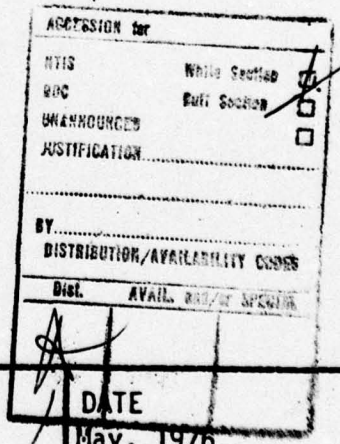
To determine if a need exists for Program Office (PO) participation in subcontract management.

To determine if PO participation in subcontract management is possible without violating the "Privity of Contract" between the prime contractor and the subcontractor.

STUDY REPORT ABSTRACT:

This study examines the complex issue of the involvement of program office personnel in subcontract management. Legal restrictions, comprising the doctrine of Privity of Contract, prevent direct management of subcontractors by program office personnel. The Armed Services Procurement Regulation provisions that define the extent to which program office personnel can get involved in subcontract management are presented, however. After defining subcontract management terms, and the need for subcontract management improvement, some current attempts to accomplish the needed improvements are discussed. Recommendations are offered which can, if implemented, directly affect the overall effectiveness of program office personnel involved in subcontract management.

KEY WORDS MATERIEL ACQUISITION CONTRACT ADMINISTRATION
CONTRACT MANAGEMENT
ASPR INCENTIVE CONTRACTS
KEY WORDS: Subcontract Management SUBCONTRACTS COST GROWTH
PROGRAM MANAGEMENT



NAME, RANK, SERVICE
LARRY C. JACKSON, MAJOR, USAF

CLASS
PMC 76-1

DATE
May, 1976

C

SUBCONTRACT MANAGEMENT--PROGRAM OFFICE INVOLVEMENT ON COST-PLUS-INCENTIVE-FEE PRIME CONTRACTS

Study Project Report

Individual Study Program

Defense Systems Management School

Program Management Course

Class 76-1

by

Larry C. Jackson
Major USAF

May 1976

Study Project Advisor
LtCol Bernard G. Demers, USAF

EXECUTIVE SUMMARY

Spiraling weapon system acquisition costs have resulted in the American taxpayer and Congress demanding that Department of Defense (DOD) personnel use superior management techniques while spending the tax dollars entrusted to them. Documented evidence suggests that approximately 50 percent of DOD procurement resources flow through prime contractors to subcontractors. This fact necessitates subcontract management surfacing as a significant system acquisition element.

This study focuses on the management of subcontractors through program office personnel involvement. These individuals are constrained from management of subcontractors, directly, by the Doctrine of Privity of Contract. As a fundamental, legal principle, this doctrine does not prohibit program office personnel from assuring that prime contractors effectively manage subcontractors, however.

After defining a need for improved subcontract management, this paper lists some current attempts which are underway in an attempt to improve the subcontract management process. Recent Armed Services Procurement Regulation (ASPR) revisions and an Air Force Systems Command supplement thereto, which pertain to subcontract management, are noteworthy attempts to improve government involvement in subcontract management.

This study recommends formal subcontract management training, better prime contractor surveillance, publication of a DOD subcontract management directive, and revisions to ASPR. Implementation of any of these recommendations will improve subcontract management and the involvement of program office personnel therein.

ACKNOWLEDGEMENTS

For his timely and expert guidance as a Study Project Advisor, the author expresses his sincere appreciation to Lieutenant Colonel Bernie Demers. General William J. Evans' (Commander, Air Force Systems Command) letter, which was provided in response to a request for use in this report, is also greatly appreciated. Mrs. Sandy Harris' services as a typist for this report are likewise greatly appreciated. The author sincerely appreciates Mr. Gary Belcher's assistance in preparing the graphic illustrations used in this report.

TABLE OF CONTENTS

If you wish to converse with me, define your terms.

--Voltaire

CHAPTER I

SUBCONTRACT MANAGEMENT--A DEFINITION

Voltaire's famous quotation is as important to written matter as it is to spoken words. Prior to defining subcontract management, a definition of the term, subcontracting, is in order. Subcontracting refers to the procurement of an item or serivce, by a prime contractor, who is not normally capable of economic production in the prime contractor's own facilities. This procurement requires the prime contractor to provide specifications to the subcontractor; i.e., the supplier. Specifications refer to anything from a blueprint, with detailed supporting documentation attached, which gives exact quality and design information for the item, to general performance and requirements documentation. The latter documentation requires the subcontractor to bear the brunt of the responsibility for the final development of the item. The prime contractor is responsible for originating the basic concept, quality, and performance requirement. (1:13, 14)[1] As used within the confines of this report, prime contractor refers to the firm responsible for supplying a complete system, consisting of end items manufactured by the prime and his subcontractors, to the government. Having defined both subcontractor and prime contractor, a definition of subcontract management is required.

[1]This notation will be used throughout the report for sources of quotations and major references. The first number is the source listed in the bibliography. The second number is the page in the reference.

Subcontract management refers to the totality of effort expended by the prime contractor to attempt to assure that a subcontractor does one thing: delivers quality hardware--on time, and for the negotiated cost. This general statement reflects the author's view, which is formed by 9 years of experience as an Air Force project engineer, responsible for monitoring the efforts of major aerospace defense contractors as they manage their subcontractors. A more complete view of subcontract management than that provided by the above definition includes the effort expended by government representatives; prime contractor plant representatives, and program office, i.e., procuring activity personnel, in assuring that prime contractors perform their subcontract management responsibilities in a cost-effective, technically acceptable and timely, efficient manner. The prime contractor performs some very specific and important tasks in performing his subcontract management responsibilities.

For the prime contractor, subcontract management includes the expenditure of the following broad categories of effort in the various subcontracting phases:

A. Quotation Phase--The tasks of locating potential sources, development of requests for proposals, performance of risk analyses, and refinement of requirements should be performed during this phase. Additional tasks include the definition of requirements and the solicitation of responsive quotations from qualified sources.

B. Evaluation and Analysis Phase--A detailed review of proposals from potential subcontractors should be performed by competent personnel to develop sufficient factual information for presentation to top management. This information is used by top management in evaluating subcontracting risks and pricing prerogatives.

C. Negotiation Phase--The prime contractor's subcontract management team should approach the prime/subcontractor negotiations with clearly defined management objectives. The agreements or understanding reached, during the negotiation, should be recorded on a continuous basis to facilitate subsequent drafting of the final subcontract, and preparation of the subcontract negotiation memorandum and file . . . .

D. Award Phase--External, as well as internal, to the prime contractor's program office, review of the documented negotiation results and draft subcontract must be accomplished to assure that: the formal contract correctly reflects the agreement, that all documentation is in order, and necessary approvals or consent are obtained.

E. Administrative Phase--Liaison must be accomplished on a continuous basis. Full prime contractor internal organizational support must be provided to the prime's subcontract management personnel during this phase to insure that timely, technically adequate, and cost-effective end items are obtained. If the subcontract requires the subcontractor to develop a computer, the prime's subcontract management personnel must be cognizant of the problems which may develop and obtain expert computer engineering talent to assess, on a continuing basis, specifics in sensitive development parameters. Prime contractor effort in this phase should cease only when the subcontract is completed. (2:95-96)

Having reviewed the tasks described above, the reader should have gained an appreciation of the complexity of subcontract management. In a continuation of the definition of the terms used in the title of this paper, a definition of program office is required.

Air Force Regulation 800-2 defines the program office as ". . . the field office organized by the program manager to assist him in accomplishing the program tasks." (3:5) This definition is further

refined in Air Force Systems Command Regulation 800-17. According to this regulation, ". . . The system program/project office is the single management entity charged with meeting AFSC responsibilities for acquiring program/projects for the Air Force." (4:1) As used in this paper, the program office includes those individuals who report to the program manager and who are responsible for all aspects of system acquisition management, including effectively managing prime contractors to insure that they manage their subcontractors. The degree to which program office personnel can influence the management of subcontractors by prime contractors is directly related to the type of contract; i.e., fixed price or cost reimbursement, which is negotiated between the program office and a prime contractor. The cost-plus-incentive-fee (CPIF) contract is a cost reimbursement type of contract widely used in the procurement of major systems and constitutes the final key term requiring an adequate definition.

The Armed Services Procurement Regulation (ASPR) defines a CPIF contract as follows:

> The cost-plus-incentive-fee contract is a cost reimbursement type contract with provision for a fee which is adjusted by a formula in accordance with the relationship which total allowable cost bears to target cost. Under this type of contract, there is negotiated initially a target cost, a target fee, a minimum and a maximum fee, and a fee adjustment formula . . . . (5:3-405.4[a])

This type of contract is graphically depicted in Figure 1 on the succeeding page. With a CPIF contract, program office personnel can become

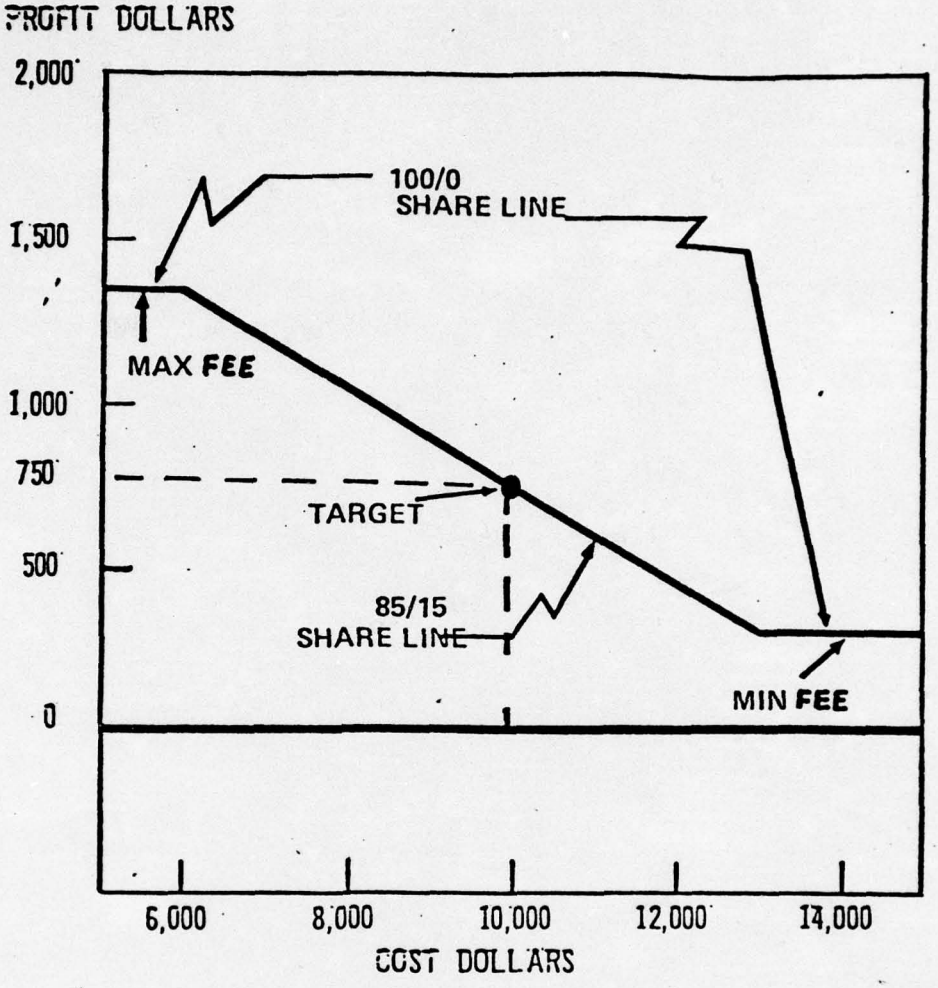


FIGURE 1

COST-PLUS-INCENTIVE-FEE CONTRACT

more actively involved in the prime contractor's performance of the contract. Program office personnel cannot legally direct the efforts of a prime's subcontractor except through that prime because of a fundamental legal principle known as "privity of contract."

Privity of contract was described by Captain Riley, a legal officer assigned to support the Armed Services Board of Contract Appeals, as follows:

> The notion of "privity" of contract is derived from the English common law recognition of the contract as a connection or mutuality of will between interfacing parties. The classical contractual relationship is one of obligation based on a promise. This obligation binds identified parties in an arrangement that is enforceable by law. A party that is not a participant in this binding legal relationship is referred to as a "third party" who lacks privity with the other two interests in the contract.
>
> The relationship between the parties to a contract is determined by the language of the respective contract and is reserved to those parties who have knowingly and voluntarily entered into the contractual relationship. The true third party is not part of the two-party contractual relationship and is thus, . . ., precluded from enforcement of that two-party contract . . . .
>
> The exclusion of third parties from enforcement of common law contracts stems from the belief that the absence of the third party under the terms of the original contract manifests the intent of the original parties and that the third party should not be able to assert himself forcibly into the original relationship. (6:1-2)

The privity of contract provision restricts program office personnel from managing subcontractors directly. ASPR provides for some degree of government involvement in subcontract management, however.

The first major ASPR provision related to subcontract management is referred to as the "consent to subcontract." In ASPR Section 23-202, 13 items are listed for the contracting officer to consider prior to giving a prime contractor permission to place a subcontract in support of a prime contract with the government. In the Air Force, consent to subcontract is usually given by an Administrative Contracting Officer (ACO) assigned to the Air Force Plant Representative Office (AFPRO) located in a prime contractor's plant. Program office personnel are not currently involved in the consent to subcontract process as much as they could and should be. ASPR provisions for this consent to subcontract process in which program office personnel can effectively contribute are listed below:

> (i) The technical justification for selection of the particular supplies.
>
> (iv) The responsibility of the proposed subcontractor.
>
> (v) The basis for selecting the proposed contractor, including the price competition obtained.
>
> . . .
>
> (vii) The effectiveness of subcontract management by the prime contractor.
>
> (viii) The appropriateness of the type of contract used. (5:23-202)

Consent to subcontract is closely interrelated to the ASPR provision of Contractor Procurement System Review (CSPR).

ASPR requires a CPSR for all contractors who have annual sales to the government in excess of $5,000,000. These sales must be made on contracts between the contractor and the government which are not firm fixed-price or fixed price with escalation contracts. (5:23-101[a]) This review is normally conducted by ACOs, with support from other AFPRO personnel. Program office personnel could assist in this effort by evaluating the subcontract management aspects of a prime contractor's procurement system. Although this provision of ASPR permits some program office personnel involvement in subcontract management, ASPR does hold the prime contractor responsible for subcontract management and restricts government personnel involvement.

The extent to which subcontract management, as provided for in ASPR, is a prime contractor responsibility with limited personnel involvement is described below:

> The prime contractor is responsible for managing his subcontract program, and the contract administration office function normally is limited to evaluating the effectiveness of the prime contractor's management of this program. Therefore, except where performance of contract administration duties by government personnel is authorized elsewhere in this regulation, administration of subcontracts by the government shall not be assumed unless undue cost to the government would otherwise be incurred or successful completion of the contract threatened. (5:20-704[b])

ASPR's assignment of responsibility for subcontract management to prime contractors and limitation of government personnel involvement is a prime consideration of General William J. Evans, Commander, Air Force Systems Command.

General Evans verbally expressed his thoughts on this subject during a visit to the Defense Systems Management School on 1 March 1976. In a letter to this author (see Appendix A), General Evans expressed his views on the subject of program office and AFPRO personnel involvement in subcontract management. As the individual who is responsible to the Air Force Chief of Staff for the acquisition of Air Force systems, General Evans' views must be highly regarded. Implicit in General Evans' written response is a recognition of the criticality of subcontract management. The establishment of a special cadre of people at each AFPRO to monitor prime contractors' management of subcontractors and the publication of an AFSC supplement to ASPR demonstrate General Evans' concern for improving subcontract management.

Public money ought to be touched with the most scrupulous conscientiousness of honor. It is not the produce of riches only, but the hard earnings of labor and poverty.

--Thomas Paine

CHAPTER II

IMPROVED SUBCONTRACT MANAGEMENT--NEED

The philosophy of Thomas Paine as listed on the preceding page accurately reflects the attitude of the American taxpayer toward Defense expenditures. This attitude places a heavy burden on program office personnel who attempt to manage the huge sums of tax dollars entrusted to them by concerned taxpayers. These dollars flow to prime and subcontractors for system development and production. Due to the legal restrictions cited previously, a firm degree of control cannot be maintained over subcontract dollars, except through prime contractors, by program office personnel. An assessment of the magnitude of subcontract dollars expended is in order to demonstrate to the reader the need for concern.

In 1970, an estimated 50 cents out of every DOD prime contract dollar value went to subcontractors. (7:88) This 50 percent figure takes on added significance when the reader considers the fiscal year 1975 contract expenditures by AFSC organizations as listed below:

AFSC Organization	FY 1975 Contract $ Value in Millions
AEDC	$ 69
SAMSO	1,724
AF FTC	20
AF CEC	1
RADC	108
AF SWC	66
AD TC	127
4950th Test Wing	243
AF ETR	82
ASD	3,928
ESD	968
AF OSR	28
AMB	2
TOTAL:	$7,366

The above figures were obtained from Mr. Mark Mergler, AFSC Headquarters--Directorate of Contract Management. According to Mr. Mergler, 50 percent of AFSC's FY 1975 procurement dollars was expended by prime contractors with subcontractors. Therefore, AFSC, as only one of several DOD procurement agencies, expended in excess of $3.6 billion in 1975 with subcontractors. (8) A need clearly does exist to properly manage these monetary resources due to their magnitude. The degree to which this need, i.e., improved subcontract management, due to subcontract dollar value, does exist is perhaps best demonstrated in an evaluation of the cost performance experienced on an actual Air Force contract.

On a certain Air Force contract, a total contract cost $85.29 million, which included subcontract costs of $17.920 million incurred. The total overrun on the contract was $7.36 million. Subcontractors, however, accounted for 50 percent of this overrun. This information is graphically portrayed (see Figures 2 and 3) on the succeeding two pages of this report. From personal familiarity with this Air Force contract, the author is certain that improved subcontract management could have significantly reduced subcontract overrun and thereby significantly reduced total contract costs. Subcontract dollar value is a valid need for improving subcontract management through more effective program office involvement. Recent views expressed by the General Accounting Office (GAO) should motivate program office personnel to get more involved in improving subcontract management.

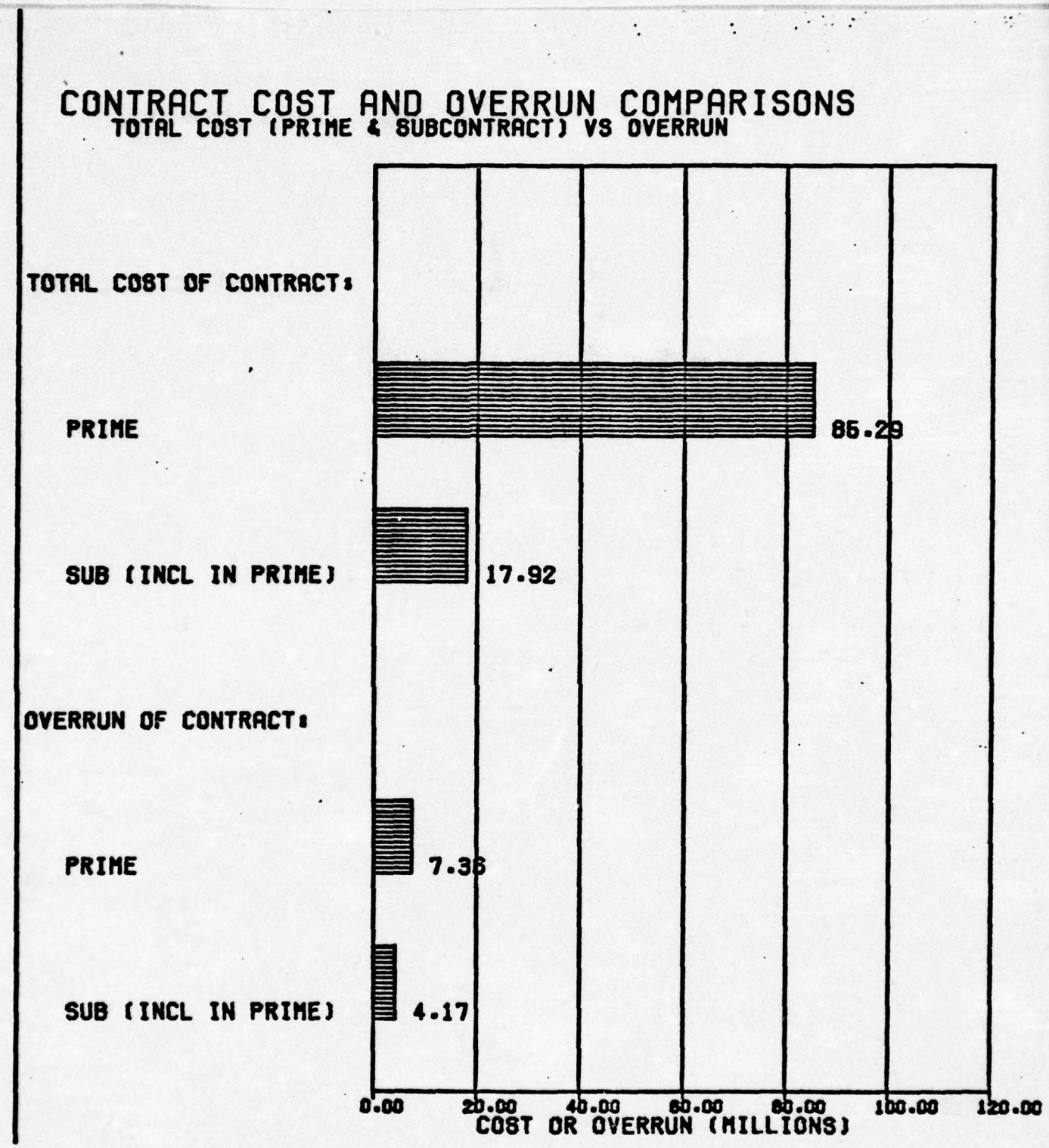


FIGURE 2

PRIME CONTRACTOR AND SUBCONTRACTOR COST AND OVERRUN DOLLAR VALUES

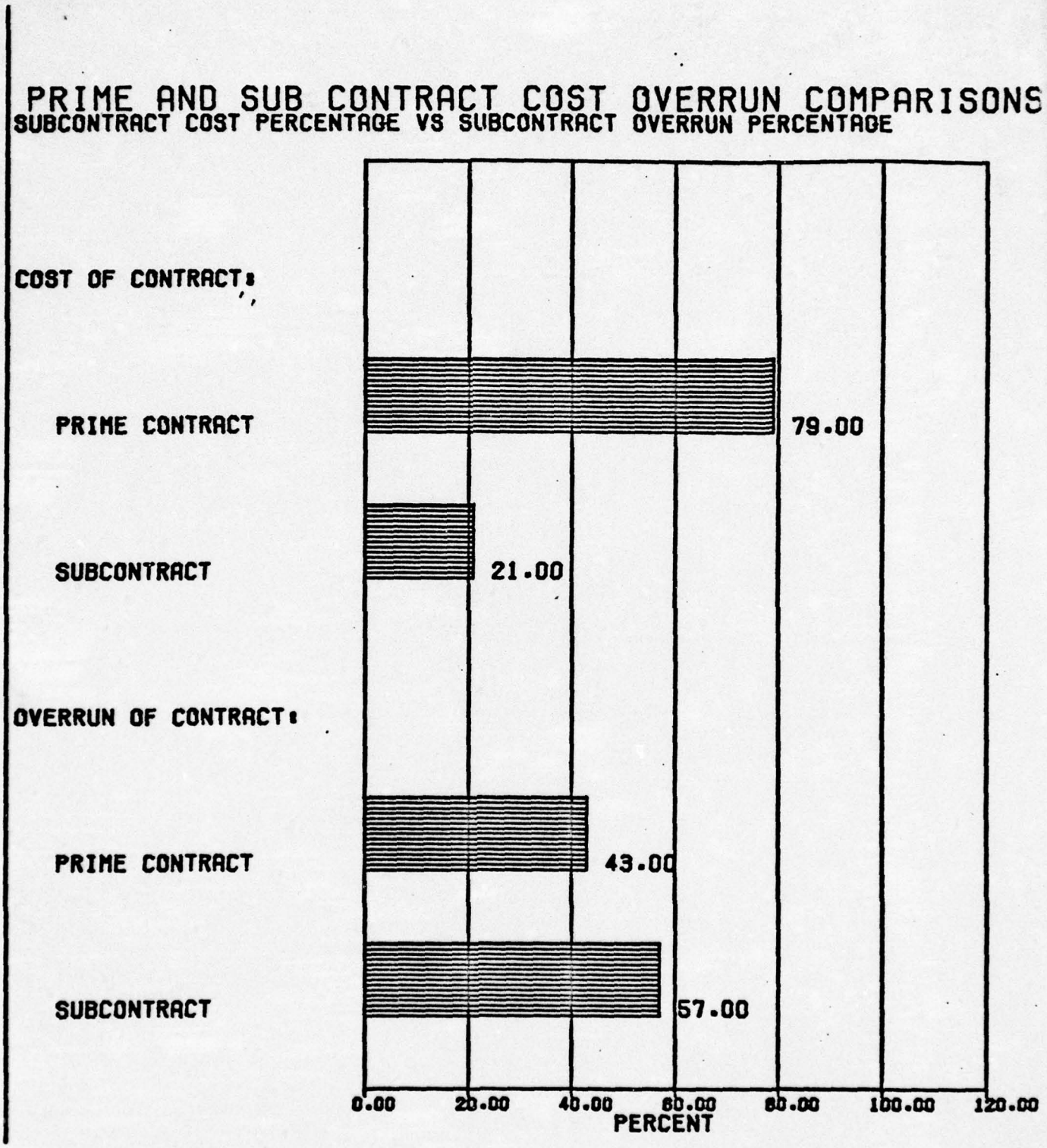


FIGURE 3

PRIME CONTRACTOR AND SUBCONTRACTOR COST AND OVERRUN PERCENTAGES

At the request of Senator Proxmire, Chairman, Subcommittee on Priorities and Economy in Government, Joint Economic Committee, the GAO investigated allegations that some employees of Ingalls Shipbuilding Division, Litton Industries, Inc., under prime contract to the Department of the Navy, engaged in activities, including taking fees or kickbacks from subcontractors. This practice violates the Anti-Kickback Act (41 U.S.C. 51-54). In a detailed review of a particular subcontract procurement, the GAO found that shortly after the award of a subcontract, the two Ingalls employees who participated in the negotiation of the subcontract became president and vice president of the firm receiving the subcontract. Unsound procurement practices by Ingalls were also found by the GAO. As an example, the GAO discovered that Ingalls procurement personnel knew that a subcontractor was experiencing financial problems, yet they continued to award 22 additional subcontracts to this subcontractor. At the time of the GAO investigation, the subcontractor was bankrupt and Ingalls was providing the necessary support to the subcontractor to complete the subcontract. (9:2) This GAO finding may not have been completely valid because the particular subcontractor may have had a unique capability which necessitated Ingalls' using him as a subcontractor. The GAO report did not indicate whether or not Ingalls attempted to locate a replacement subcontractor, however. Having reviewed this report, Congress criticized both the Navy and Litton Industries. An indication of congressional concern over the subcontract management deficiencies was shown by a follow-up investigation.

In the follow-up investigation, the GAO found instances where:

1. Subcontractors had presented gifts and had frequently entertained prime contractor employees who were in positions to influence purchasing decisions.

2. Prime contractor employees were involved in apparent conflicts of interest.

3. Purchases had been made through sales agents for no apparent reasons, and the prices had been increased to cover sales agents' fees.

4. Transportation and relationships between various prime contractor and subcontractor employees were questionable.

These findings resulted in the GAO recommending to the Secretary of Defense the incorporation of a revision in ASPR (see Appendix B) which would prohibit such practices. The GAO proposed this ASPR revision as a mandatory clause which should be included in all government contracts. (10:5) Program office personnel need to be aware of the possibilities of improper prime contractor direction of subcontractors caused, in part, by subcontractors giving gratuities to prime contractor personnel. Improper direction of subcontractors by prime contractors can result from conflicting prime contractor direction.

Conflicting direction to subcontractors can occur when various prime contractor employees fail to understand or properly discharge their duties in subcontract management. On a major aerospace program, a prime contractor's propulsion engineer assumed that he had full responsibility for both in-house and subcontract propulsion work because he was assigned the task of program engineer by written company policy. A subcontract administrator, employed by this same prime

contractor, assumed he was responsible for propulsion subcontracts because another written company policy assigned responsibility for subcontracts to the procurement organization. Under the provisions of these two directives, neither the subcontract administrator nor the program engineer was directly responsible for cost or schedule management. Neither took effective steps to control two propulsion subcontractors. Subcontract overruns caused the industry and government program managers to be replaced. If responsibility for subcontract management is poorly defined in the prime contractor's organization, it is easy to imagine how confusing and costly this lack of definition can be. A subcontractor may be subject to conflicting directions from the prime's program manager, subcontract administrator, program engineer, general manager and director of procurement. This condition can be precluded by program office personnel requiring the prime contractor to delineate, in detail, his subcontract management responsibilities versus personnel assignments. Also, program office personnel should verify that the identical delineation is provided to subcontractors. (11:48) A firm recognition of a need to improve subcontract management, in an attempt to correct subcontract management deficiencies, grew out of an AFSC study on the subject. This study, which addressed issues in addition to inadequate prime contractor direction of subcontractors, is subsequently evaluated.

At the request of former Assistant Secretary of the Air Force (I&L) Whittaker, AFSC performed a comprehensive subcontract management study

on 24 major programs, including such systems as AWACS, B-1, C-5A, F-15 and MINUTEMAN. Visits to 12 prime contractors and 46 subcontractors immeasurably aided the objectivity and authenticity of the study. Key AFSC subcontract management study findings included the following:

1. Most of the subcontracts were being written on a firm fixed-price basis, regardless of the risk.
2. Indiscriminate flowdown of technical requirements from prime to subcontractor.
3. Varying emphasis placed on subcontract management by prime contractors, ranging from very good and tight management of subcontractors to a sort of "hands-off" attitude.
4. Wide variations among program offices in how much attention they were paying subcontractors. Few program offices received copies of subcontract reports via the prime contractor.

Based on the findings listed above, study conclusions consisted of:

1. Current DOD acquisition policy has had little impact on prime/subcontractor relationships.
2. Better surveillance of technical flowdown needed.
3. Prime given little guidance by AF on management of subcontractors, and prime contractor management of subcontractors varies.
4. ASPR discourages Air Force surveillance of prime/sub relationships.
5. AF surveillance promotes more effective prime management of subs. (12)

The findings and conclusions of the AFSC subcontract study defined a need for improved subcontract management. Of specific importance for this paper was the apparent need for more program office involvement in subcontract management. AFSC's recognition of the need for improved subcontract management and the study findings and conclusions lead to the increased subcontract management emphasis which this author will examine next.

The world would sleep if things were run

By men who say, "It can't be done."

--Philander Johnson

CHAPTER III

BETTER SUBCONTRACT MANAGEMENT--CURRENT ATTEMPTS

The personnel assigned to Headquarters, AFSC, by their actions following the subcontract management study, certainly supported the views of Philander Johnson as expressed on the previous page. A worthwhile and meaningful idea which was transformed into reality by AFSC personnel was the publication of an AFSC ASPR supplement for subcontract management. This supplement specifies, in a subcontract management policy statement, that ". . . Management of subcontractors is the responsibility of the prime contractor." This supplement also places a requirement on AFSC organizations (both AFPROs and program offices) to ensure that the prime contractor efficiently and effectively carries out his obligation of managing subcontractors. (13:23-5003) To accomplish this task, i.e., verifying that a prime contractor properly manages his subcontractors, the AFSC ASPR Supplement for Subcontract Management requires the following actions be taken:

> (1) By the program office
>
> a. Evaluate, during the source selection process for propsective prime contractors, their ability to manage subcontractors.
>
> b. Identify critical high-risk subcontract efforts during source selection . . . .
>
> c. Consider the prime contractor's success in managing subcontracted work effort in any new program with significant subcontracting effort . . . .

d. Contractually define the subcontract management responsibility of the prime contractor, in his prime contract with the government, including any special surveillance/reporting requirements.

e. Continually evaluate critical/high-risk subcontracted effort for special management emphasis throughout the contract management cycle.

(2) By the AFPRO

a. Respond to the program office's request for assistance in critically evaluating the prime contractor's ability to manage his subcontracted work effort.

b. Maintain continuous surveillance of the prime contractor's subcontract management system.

c. Use supporting contract administration in carrying out the surveillance function when necessary.

d. Maintain close and continuing coordination with the program office. Keep the program office informed on a current basis of subcontract problems that may impact the program, including actions being taken by the contractor toward resolution. (13:23-5004)

These requirements have been instrumental in developing a keener awareness of subcontract management as practiced by AFSC field organizations. AFSC's Space and Missile Systems Organization (SAMSO) serves as a good example of command-wide emphasis given to subcontract management.

The degree to which SAMSO has increased its subcontract management emphasis is perhaps best illustrated by the subcontract management policy stated by Lieutenant General Morgan, SAMSO Commander (see Appendix C). This policy supports the AFSC ASPR subcontract management supplement cited earlier. By following this policy, SAMSO program offices are doing a better job of subcontract management. The SAMSO subcontract management effort is also coordinated with AFPRO's.

During an interview with this author, Mr. Donald Dodd, a SAMSO procurement specialist, indicated that improved SAMSO/AFPRO coordination exists in the area of subcontract management. According to Mr. Dodd, this coordination stems directly from the amicable relationship which exists between Lieutenant General Morgan and Major General Reilly, the Commanders of SAMSO and the Air Force Contract Management Division. (14) For specific proof of his contention, Mr. Dodd provided this author with copies of correspondence which he stated has been provided to all SAMSO program offices (see Appendix D). Accompanying SAMSO's increased subcontract management emphasis has been improved government surveillance, which will be considered next.

The formal prime contract surveillance system provided for in ASPR and used by DOD for exercising better subcontract management control is the Contractor Procurement System Review (CPSR). The three military departments use different approaches for conducting the reviews. The Army conducts CPSRs with special teams. The Navy

retains the responsibility for conducting CPSRs at the procuring activity level. Air Force CPSRs are performed by an ad hoc team approach, consisting of field procurement management analysts with support from professional specialists, such as auditors and quality assurance personnel. These reviews consist of an examination of a prime contractor's purchasing and subcontracting procedures and practices. Following the initial approval of a contractor's procurement system, the government, with periodic surveillance, relies on a prime contractor's purchasing system. Therefore, all individual procurement actions are not reviewed. This reasonable degree of surveillance by government personnel can be more than adequate for those few prime contractors who possess good subcontract management systems. An evaluation of such a system follows. (7:93-96)

A noteworthy attempt to perform proper subcontract management and surveillance is currently underway by a major Defense prime contractor. The author has personel knowledge of this contractor's subcontract management procedure. This procedure is appropriately documented in a subcontract management planning document. A subcontract management group approach is used by this contractor for managing his subcontractors. At the direction of a program manager, responsible for a specific program, a subcontract management group is formed for each subcontractor supporting that program. Corporate policy makes the program manager responsible for total program success, including subcontract management. Delegation of this subcontract management authority is provided to

a subcontracts director by the program manager. The subcontracts director provides overall program management direction and guidance to the individual groups. Since the responsibility for daily subcontract management is discharged by a subcontract management group, a more detailed evaluation of it is in order.

Each subcontract management group is comprised of a subcontracts procurement officer, program financial analyst, quality control engineer, reliability engineer, and design engineer. Although all of these individuals are authorized to discuss various areas of the subcontractor's performance with various subcontractor personnel, the subcontracts procurement officer is the only individual (and this includes the subcontracts director) who can direct the subcontractor's performance of the subcontract. This "single man" subcontract direction concept alleviates the problem, cited earlier, of multiple individuals from a prime contractor directing a subcontractor.

Subcontract management group activity begins with pre-subcontract award tasks, such as subcontract RFP preparation, proposal evaluation, and negotiation. Following subcontract award, the group actively administers, as a cohesive unit, the subcontract. To assist in the resolution of a specific problem, group members are assisted by key functional department experts. Key subcontract technical milestones, expenditures and schedules are closely monitored by the subcontract management group. Whereas the subcontract management group approach has apparently been successful for this prime contractor, some other prime contractors have not been as successful in attempting to manage subcontractors.

Some prime contractor personnel, while remaining at their own facilities, attempt to mointor a subcontractor's performance by reading reports prepared by the subcontractor. Voluminous quantities of data may be prepared by a subcontractor and sent to a prime contractor, but there is seldom any meaningful attempt made by the subcontractor to correlate these data with his total performance. Therefore, prime contractors often make decisions based upon data which are not current, and which may not correlate the major program elements (cost, schedule and performance) required for effective subcontractor performance evaluation by the prime contractor. (15:20-23) This example of "remote-control" subcontract management, as practiced by some prime contractors, suggests a need for what this author will refer to as "superior subcontract management." This phrase is used to characterize the recommendations which this author desires to make regarding the additional advancements needed for improving subcontract management--an elusive goal for system acquisition management personnel.

Ductus, Doctrina, Dominato

--Slogan of the Department of Defense Systems Management School

CHAPTER IV

SUPERIOR SUBCONTRACT MANAGEMENT--RECOMMENDATIONS

Leadership, Doctrine, and Management, the English translation of the slogan, shown on the previous page, of the Defense Systems Management School (DSMS), serves as an appropriate introduction to this, the final chapter of this paper. In this final chapter, recommendations are presented which, if implemented, will permit Air Force project officers to perform, through prime contractors, the important task of subcontract management. Project officers are the individuals in the program office who can most effectively discharge this responsibility. Prior to examining in detail any of the author's recommendations, the basis for these recommendations should be considered.

The recommendations which the author makes concerning the subcontract management problems cited in the previous three chapters of this paper are based on research, having attended DSMS, and 9 years of invaluable experience gained while working in two different Air Force program offices. In these program offices, the author was responsible for managing the efforts of major prime and sub (through the prime) aerospace defense contractors. The reader is requested to evaluate these recommendations while recalling these factors. The author's personal experience, therefore, serves, in part, as a basis for many of the recommendations contained herein.

RECOMMENDATION:

Use DSMS as the chief formal training institution for providing the knowledge needed by project officers to perform (through prime contractors) superior subcontract management.

RATIONALE:

The Program Management Course, one of the four major categories of courses offered by DSMS, provides 14 different courses which have varying degrees of applicability to subcontract management. Foremost among these is the Contract Management (CM) course. In CM, students gain an understanding of the procurement process. (16:7) Students also receive, in CM, subcontract management lectures. The most important topic presented in this course, for this author, was a block of instruction on incentive contracting. In this block of instruction, students are taught to use the Multiple Incentive Analysis Program (MIAP). This computer program produces several different types of outputs which are useful in analyzing incentive contract provisions. The incentive provisions and an example of a typical MIAP output for an actual subcontract are shown in Appendix E. In this example, the cost versus schedule incentive parameters are plotted. The horizontal and vertical axes of the plot are graduated in millions of dollars of subcontract costs and the number of days delinquent in the delivery of an item of hardware from the subcontractor to the prime contractor. The diagonal lines, contained within the body of the plot, represent various levels of profit which the subcontractor can receive for this subcontract. If the subcontractor was operating along the 7.5 percent profit line, and desired to improve his hardware

delivery by 20 days (the difference between 20 and 0 located on the Y-axis of the plot), he could do this by moving along the 7.5 percent profit line from point A to point B. The amount of money which he could spend on this CPIF subcontract in improving this delivery schedule is approximately $200,000 (the difference between $2.9 and $2.7 million, as identified on the X-axis of the plot by points 1 and 2 located along the X-axis of the plot). Therefore, this subcontract incentive structure means each day of hardware delinquency is worth $10,000 ($200,000 divided by 20 days).

The Air Force project officer responsible for mointoring, through the prime contractor, the development of this item of hardware would most likely conclude from the analysis described above that a poor prime/subcontractor incentive structure had been negotiated. He would probably conclude that $200,000 was an excessive sum of money for the government to pay a subcontractor, through a prime contractor's CPIF contract, for a 20-day advancement in the delivery of a single item of subcontractor hardware. The project engineer could have prevented the negotiation of this poor incentive structure by reviewing (with knowledge gained in the DSMS PMC course) the elements of this subcontract prior to the ACO giving his "consent to subcontract" notification to the prime contractor for this subcontractor. Contract Management is not the only DSMS PMC course which has subcontract management applicability for the project engineer. Brief examples of this contention are provided in the succeeding paragraph.

The Fundamentals of Program Management (FPM) course provides a formal exposure to the issues and problems that result in the use of program management techniques while interfacing within large organizations; i.e., prime and subcontractors, within the framework of this paper. (16:3) A basic understanding of classical and modern statistical concepts, e.g., Bayesian decision theory, is provided to the project engineer in the Statistical Analysis course. (16:4) These principles have direct application to reliability, quality control and other endeavors in which prime and subcontractors engage. In the Essentials of Corporate Finance course, the project engineer will obtain a basic understanding of financial statements and accounting information which will enable him to attempt to avoid financial management induced surprises. (16:5) For the sake of brevity, only 3 of the 14 courses comprising the DSMS PMC curriculum are discussed in this paragraph. Each course has applicability, in varying degrees, to the subcontract management tasks which are performed by project engineers in their surveillance of prime contractors' management of subcontractors. Following this discussion of formal training, the recommended approach for improving subcontract management surveillance constitutes the second area of recommendations to which the reader's attention is directed.

RECOMMENDATION:

A program manager should form a specific subcontract management group within his program office to insure proper management of the large portion of total program office resources expended by subcontractors.

RATIONALE:

Formation of a subcontract management group in each program office would, in the opinion of this author, correct many of the subcontract management deficiencies cited earlier in this paper. This group could interface in a formal sense and on a regularly scheduled basis with the dedicated cadre of AFPRO personnel who, as discussed by General Evans in the letter contained at Appendix A, would monitor the prime contractors' management of their subcontractors. In addition to performing the tasks listed above, this group could routinely, i.e., daily, if necessary, contact the government representatives assigned to subcontractors' plants to determine the actual status of subcontractor performance.

The formation of subcontract management groups within program offices would lead to more consistent subcontract management direction being provided to prime contractors by program offices. The current subcontract management direction to prime contractors procedure used by program offices, with which the author is familiar, consists of individual project officers providing direction to prime contractors for specific subcontractors. Very little coordination between project officers for providing this direction is accomplished. This practice of inconsistent subcontract management direction being provided to prime contractors by project engineers is equally as poor as the example of inconsistent subcontract management by prime contractors cited earlier in this paper.

Program office subcontract management groups would lead to more consistent prime contractor surveillance of subcontractors because prime contractors would quickly realize that program offices would be more capable of giving consistent subcontract management direction to prime contractors and rapidly assessing compliance. This approach, if adopted at SAMSO, would certainly provide an organized approach to the cohesive subcontract management bond which should exist between program office and AFPRO personnel as discussed in the Generals Morgan and Reilly letters contained in Appendix D. Establishment of a formal subcontract management group would provide a consistent basis for program offices performing the subcontract management duties required by the AFSC ASPR Supplement for Subcontract Management discussed in Chapter II of this paper. All of the above listed benefits would result from implementing the author's second recommendation, i.e., formation of subcontract management groups in program offices. The effectiveness of such a group will be greatly enhanced by the publication of a DOD subcontract management directive.

RECOMMENDATION:

The Office of the Assistant Secretary of Defense (I&L) should publish a DOD directive which explicitly defines the responsibilities of DOD personnel involved in subcontract management.

RATIONALE:

The current absence of a specific DOD subcontract management directive tends to indicate, to prime and subcontractors alike, a reduced high level of interest in this very important facet of systems acquisition

management. DOD elements, i.e., the Army, Navy and Air Force, view DOD directives with a firm desire for compliance thereto because these documents usually require the publication of implementing directives by DOD elements. The implementing directives are usually very detailed and the product of careful thought, since copies of them must be provided to DOD. A DOD directive also stems from a great deal of study on a particular subject because senior DOD officials must approve them. From such study, better ideas than advanced by this paper for subcontract management improvement could result. Specifically, such study could identify effective techniques for increasing the involvement of DOD elements in subcontract management without violating the doctrine of privity of contract. The views expressed in this paragraph should not be interpreted by the reader as a criticism of DOD. This author's intent was to identify a valid need. Having identified a need for a DOD subcontract management directive, the author's final recommendation focuses on recommended ASPR changes.

RECOMMENDATION:

The Armed Services Procurement Regulation Committee should revise ASPR to include, in all government contracts, a clause which specifically refers to the illegality of the acceptance of gratuities by prime contractor personnel from subcontractors.

RATIONALE:

The objectivity needed by prime contractor personnel in the management of subcontractors can be influenced if these individuals accept gratuities from subcontractors. A direct result of the reduction of

this objectivity can be the acceptance of marginal subcontractor performance by prime contractor personnel. Marginal subcontractor performance can lead to deficient subcontractor hardware being supplied to the government through the prime contractor. Deficient hardware obviously causes a reduction in mission effectiveness--a result which can have disastrous consequences in a military environment. This entire process can emanate from a violation of the Anti-Kickback Act. The GAO's recommended ASPR revision (see Appendix B) can, if incorporated in ASPR, be very instrumental in reducing the incidence of prime contractor personnel accepting gratuities from subcontractors. This reduction would occur because a clause expressly prohibiting such illegal acts would be included in all government contracts. Prime contractors would then know, and insure that their personnel knew, that the mere acceptance of gratuities from a subcontractor would constitute a serious breach of government contractual provisions. Having made this final recommendation on subcontract management, concluding and reflective thoughts are in order.

Adoption of any of the recommendations contained in this report is thought to be practical. By doing so, subcontract management will be improved. If any of these recommendations are adopted, or if they serve to stimulate more innovative thought, this paper would have justified its raison d'etre, i.e., reason for being.

APPENDIX A

GENERAL WILLIAM J. EVANS, COMMANDER, AIR FORCE SYSTEMS COMMAND, LETTER TO MAJOR LARRY C. JACKSON, DSMS, PMC 76-1 (WITH A COPY OF MAJOR JACKSON'S REQUEST ATTACHED)

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR FORCE SYSTEMS COMMAND
ANDREWS AIR FORCE BASE, WASHINGTON, D.C. 20334

1 APR 1975

Major Larry C. Jackson
Defense Systems Management School
PMC 76-1
Fort Belvoir VA 22060

Dear Major Jackson

I have read your 22 March letter on Subcontract Management and have no objection to your using my response provided one subtle change is made. The words "subcontractor's plant" should really be "contractor's plant" as Subcontract Management starts with the prime contractor, but may on occasion also involve Government personnel in the subcontractor's plant.

Regarding my views on program office involvement in the management of subcontracts, I feel the program office should principally rely on field contract management at prime contractor locations. However, it may be necessary under special circumstances to have Government personnel at the subcontractor's plant become involved. There is a unique relationship between the prime contractor and his vendors which must be carefully handled by interested Government personnel. In the performance of any contract, the prime contractor must remain responsible for selecting and managing his subcontracted effort.

This is not to say that we relinquish our responsibilities for assuring program success. We recognize the role subcontractors play in weapon systems procurement and have taken steps to improve our posture in this area. Recent actions include the establishment of a cadre of people at each Air Force Plant Representative Office dedicated to monitoring the contractor's management of his subcontractors. In addition, we have published an Air Force Systems Command Supplement to the Armed Services Procurement Regulation which includes the requirement for a Subcontract Management Plan in contract solicitations for major procurements. It also requires the identification of subcontracts critical to the program and provides for evaluating prime contractor's management of his subcontractors.

If you desire additional information to assist you in preparing your research paper, you can contact Lt Col Joe R. Kirk or Mr. Mark O. Mergler (AFSC/PPM), IDS 185-4191.

Sincerely

WILLIAM J. EVANS, Lt General, USAF
Commander

DEPARTMENT OF DEFENSE
DEFENSE SYSTEMS MANAGEMENT SCHOOL
OFFICE OF THE COMMANDANT
FORT BELVOIR, VIRGINIA 22060

DSMS-PMC-76-1

22 March 1976

SUBJECT: Subcontract Management

General William J. Evans
Commander, Air Force Systems Command
Andrews Air Force Base
Washington, D. C. 20355

1. As a student at the Defense Systems Management School (DSMS), I am preparing a research paper entitled, "Subcontract Management--Program Office Personnel Involvement on Cost-Plus-Incentive-Fee Prime Contracts." This is a subject of vital importance to me in my current assignment as a SAMSO Project Officer in the Office of Special Projects (OSAF).

2. In support of this research project, I asked you, during your DSMS visit of 1 March 1976, the question shown on the attached sheet along with your reply. The DSMS non-attribution policy prevents me from using your reply prior to obtaining your written permission to do so.

3. In an attempt to add significance to the subject of subcontract management, I desire to include an attachment to my paper which contains an authoritative statement on the subject. Therefore, I respectfully request your written views on the need and importance of program office personnel involvement in subcontract management.

4. Also, I request your permission to use your reply in my paper.

5. In anticipation of your reply Sir, I express my sincere appreciation.

Larry C Jackson

1 Attachment
as

LARRY C. JACKSON
Major USAF
DSMS, PMC 76-1

SUBCONTRACT MANAGEMENT QUESTION FOR GENERAL EVANS

Question: Sir, will you give us your views on the need and importance of program office personnel involvement in subcontract management?

General Evan's Reply: Subcontract management is very important. I rely on the Contract Management Division representatives who reside in the subcontractor's plant to fulfill this very important function.

APPENDIX B

GENERAL ACCOUNTING OFFICE'S RECOMMENDED ARMED SERVICES PROCUREMENT REGULATION REVISION

GAO'S RECOMMENDED ASPR REVISION

(a) No officer, partner, employee, or agent of the contractor or any tier subcontractor holding a contract, agreement, or purchase order to perform all or any part of the work required under a negotiated government contract shall solicit or accept, directly or indirectly, any gift, gratuity, favor, entertainment, loan, fee, commission, or any other thing of monetary value from any officer, employee, or agent of a subcontractor at any tier which obtained, or is seeking to obtain, work under or related to government contracts with the contractor or any higher tier subcontractor.

(b) The government, may, by written notice to the contractor, terminate the right of the contractor to proceed under this contract if it is found, after notice and hearing, that gratuities, as described in paragraph (a) hereof, have been solicited or accepted.

(c) If this contract is terminated as provided in paragraph (b) hereof, the government can pursue the same remedies against the contractor as it could pursue if there were a breach of the contract by the contractor.

(d) If the contractor has information of violations or suspected violations of this clause or of 41 U.S.C. 51, the contractor shall report the facts and circumstances to the appropriate government contracting officials.

(e) The contractor shall insert a similar clause establishing the right of the prime contractor or any subcontractor hereunder at any tier to terminate lower tier subcontracts if gratuities as defined in this clause are solicited or accepted.

APPENDIX C

LIEUTENANT GENERAL THOMAS W. MORGAN--

SAMSO COMMANDER'S SUBCONTRACT MANAGEMENT POLICY

COMMANDER'S POLICY

DATE 17 OCT 1975

SUBJECT: Subcontract Management

1. Command policy for subcontract management was initially established by AFSC/CC letter, 27 April 1972, "Command Policy - Subcontract Surveillance". In carrying out this policy, special contractual provisions have been developed under the Armed Services Procurement Regulation (ASPR) at both HQ AFSC and SAMSO. (Reference AFSC ASPR Supplement 23-5000 and SAMSO Supplement to ASPR 3-501 and ASPR 7-104.151.)

2. Effective subcontractor surveillance will continue to be one of the most important aspects of overall program management. SAMSO program managers and system program directors must utilize all management tools available to insure that (1) early identification is made of critical/high risk subcontract items; (2) prime contractors have an adequate system for selecting, contracting with, and managing subcontractors; (3) visibility is maintained in areas of subcontractor/vendor performance, including provisions for access to facilities and data, and in the prime's flow-down of government technical requirements, but making certain that areas such as reliability/maintainability allocations do not lead to unwarranted costs; and (4) appropriate arrangements are made with Contract Administration Offices (CAOs) for special surveillance of and reporting on subcontractor/vendor performance.

Thomas W. Morgan

THOMAS W. MORGAN
Lt. General, USAF
Commander

OPR: SAMSO/AW

APPENDIX D

LETTER TO LIEUTENANT GENERAL MORGAN, SAMSO COMMANDER

FROM MAJOR GENERAL REILLY, AF CMD COMMANDER

AND LIEUTENANT GENERAL MORGAN'S REPLY

DEPARTMENT OF THE AIR FORCE
HQ AIR FORCE CONTRACT MANAGEMENT DIVISION (AFSC)
KIRTLAND AIR FORCE BASE, NEW MEXICO 87117

REPLY TO ATTN OF: CC

18 November 1975

SUBJECT: Subcontract Management

TO: SAMSO/CC

1. We have expanded our program for monitoring the contractor's procurement system by emphasizing to prime contractors thorough technical review of proposed subcontract drawings, specifications, and statements of work prior to requesting bids or proposals. We are also stressing adequate technical visibility during the subcontract post award phase. Greatest emphasis is applied to critical and major subcontracts in the full scale development and initial production phases of the acquisition process.

2. We believe that these prime contractor actions will reduce the impact of subcontract problems on program cost and delivery schedule. They will also provide earlier recognition of unavoidable problems so that the impact on cost and schedule may be reduced. Our operating concept in this area is to assure sound management by the prime contractor, not to accomplish the tasks for him.

3. Our Air Force Plant Representatives will be advising your program offices about the specifics of this additional support that can be provided. It is part of AFCMD's emphasis on "preventive" rather than "reactive" contract management. This added effort is our implementation of AFSC ASPR Supplement Section XXIII, Part 50. Teamed with your implementation of that supplement, together we should make a substantial downstream contribution to improvement of the weapon system acquisition process.

M. R. REILLY
Major General, USAF
Commander

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS SPACE AND MISSILE SYSTEMS ORGANIZATION (AFSC)
LOS ANGELES AIR FORCE STATION, PO BOX 92960, WORLDWAY POSTAL CENTER
LOS ANGELES, CALIFORNIA 90009

8 DEC 1975

Major General M. R. Reilly
Commander, Air Force Contract Management
Division
Kirtland Air Force Base, NM 87117

Dear General ~~Reilly~~ Tex

Thank you for your letter of 18 November concerning your actions to expand and reemphasize your subcontract management efforts with the prime contractors. In view of the substantial share of systems procurement represented by subcontracting, we applaud and wholeheartedly welcome your enhancement of Air Force attention to its proper management. One particular area where your expertise can be most helpful is the examination of contractors' proposals during source-selection activity. We have learned in the past that a combination of the unique perspectives of the SPO Director and his AFCMD counterpart can solidify the Air Force position, greatly facilitating the selection process as well as subsequent dealings with the successful contractor.

While our ability to monitor contractors' internal management is considerably more limited than yours, SAMSO has always emphasized the selection of qualified subcontractors and attempted to maintain some controls over their management. In 1972, SAMSO pioneered the subcontract management plan and, in fact, authored the clause currently implemented by AFSC in Section VII of the ASPR. However, your initiatives in taking the lead in this important area are a much needed impetus which will add credibility to what we have long claimed to be an area of major concern.

I have disseminated your letter to my program offices and encouraged their attention to its intent. Moreover, the attached policy letter further reflects the emphasis I place on subcontractor surveillance/ management in relation to today's overall program management techniques.

Sincerely

Thomas W. Morgan

Lt. [illegible], USAF
Commander

1 Atch
Commander's Policy Ltr, 17 Oct 75

AMERICAN REVOLUTION BICENTENNIAL 1776-1976

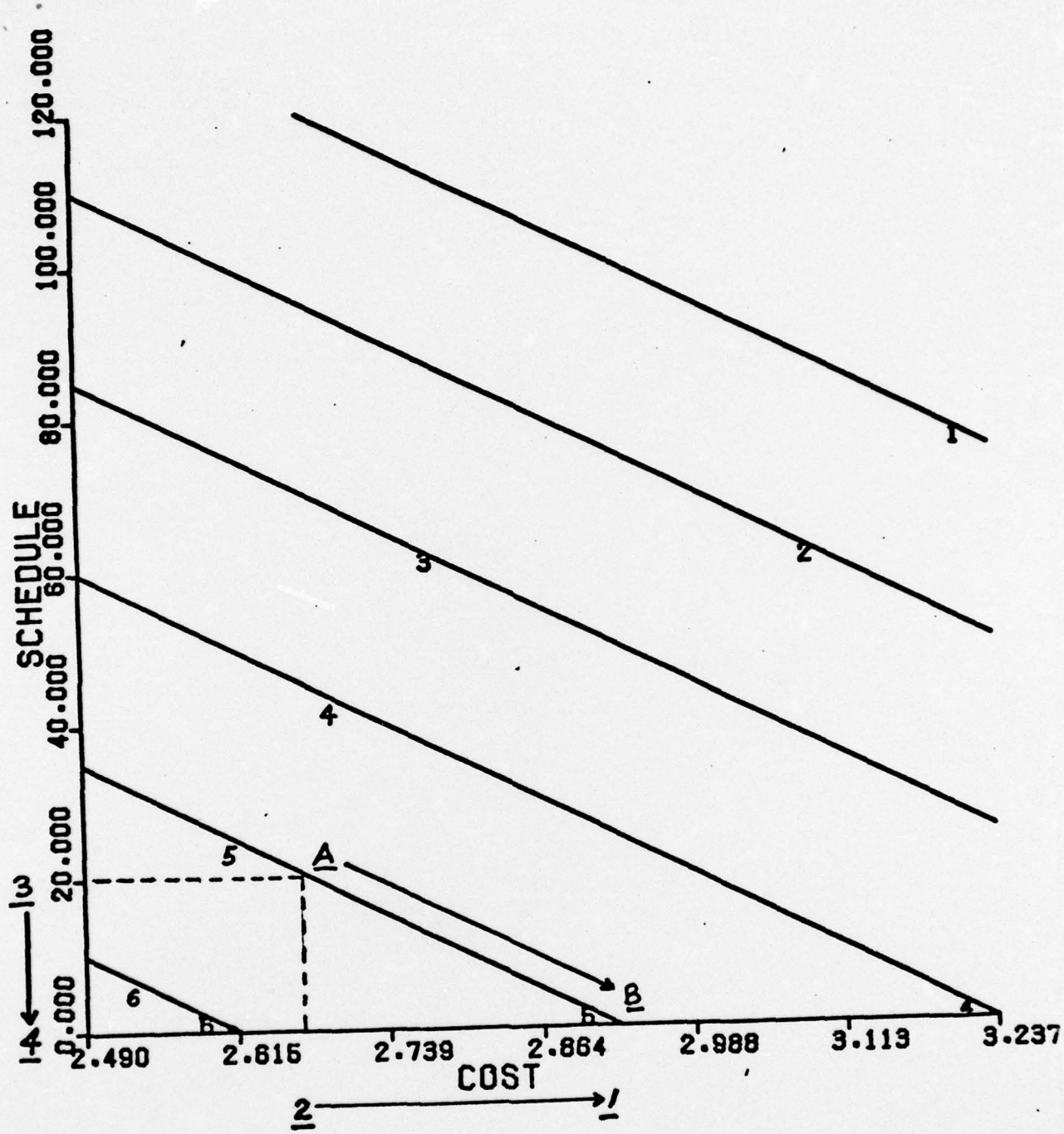
APPENDIX E

PRIME/SUBCONTRACTOR SUBCONTRACT INCENTIVE STRUCTURE

INCENTIVE STRUCTURE FOR AN ACTUAL SUBCONTRACT

1. 80/20 sharing line on overrun only.
2. Maximum fee penalty based on cost is minus 6 percent.
3. Maximum fee penalty on schedule delivers is 2 percent ($49,800).
4. Maximum fee penalty on performance is 4 percent ($99,600).
5. Minimum fee based on target cost is 3-1/2 percent ($87,150).
6. Maximum fee based on target cost is 15 percent ($373,500).

NOTE: Negotiated target cost, profit and price for this CPIF subcontract were $2,490,000; $373,500; and $2,863,500, respectively.



SUBCONTRACT COST VERSUS SCHEDULE INCENTIVE PLOT

BIBLIOGRAPHY*

1. Hall, J. R., MAJ, USAF. "Toward More Effective Management of Weapon System Subcontracting," Air Command and Staff College (Air University), Maxwell AFB, Alabama, 1964, pp. 12, 13.

2. Eveld, Robert J. "Subcontract Management--One Key to Successful Weapon System Development," National Contract Management Journal, Vol. 7, No. 1 (Spring 1973), pp. 95-98.

3. Air Force Regulation 800-2, Acquisition Management: Program Management, Department of the Air Force, Washington, D.C., 16 March 1972, p. 5.

4. Air Force Systems Command Regulation 800-17, Acquisition Management: Program Advisory Boards, Headquarters, AFSC, Andrews AFB, Maryland, 15 April 1974, p. 1.

5. Armed Services Procurement Regulation, Department of Defense, Washington, D.C., 1 October 1975, Section 3-405(a), Section 23-202, Section 23-101(a), Section 20-704(b).

6. Riley, Dennis J., Captain, USA, JAGC, Legal Officer, Armed Services Board of Contract Appeals. Memorandum to Major Larry C. Jackson, subject: Subcontractor Appeals Before the ASBCA. Personal interview was conducted with Captain Riley, Arlington, Virginia, 13 February 1976.

7. Commission on Government Procurement. "Report of the Commission on Government Procurement," Volume I, Washington, D.C., 1972, pp. 88, 93-96.

8. Mr. Mark Mergler, Procurement Analyst, AFSC Directorate of Contract Management, Andrews AFB, Washington, D.C. Personal interview, April, 1976.

9. Staats, Elmer B., Comptroller General of the United States. Review of Selected Subcontracts Awarded by Ingalls Shipbuilding Division of Litton Industries, Inc., Washington, D.C., October 23, 1973, p. 2.

10. Keller, Robert F., Deputy Comptroller General of the United States. "Statement of Robert F. Keller before the Subcommittee on Priorities and Economy in Government Joint Economic Committee." Washington, D.C., January 15, 1976, pp. 1, 5.

*For the convenience of the reader, references are listed in the sequence in which they are used in the report.

11. Baumgartner, John S., "The Program Manager and the Subcontractor: Hands on or Hands Off?" Defense Management Journal, July, 1973, Volume 9, No. 3, p. 48.

12. "Air Force Systems Command Subcontract Management Study." Unpublished study, Headquarters, AFSC, Andrews AFB, Maryland, 1972.

13. Air Force Systems Command ASPR Supplement, Section XXIII - Part 50, "Subcontract Management," Headquarters, AFSC, Andrews AFB, Maryland, 7 August 1975, paragraphs 23-5003, 23-5004.

14. Mr. Donald W. Dodd, Procurement Specialist, Directorate of Acquisition Support, Headquarters, SAMSO, March, 1976.

15. Hickley, Robert H., "The Subcontractor: Manage or Monitor Him," Aerospace Management, Volume VII, No. 2, February, 1974, pp. 20-23.

16. Department of Defense Systems Management School. "Program Management Course 76-1 Syllabus," Fort Belvoir, Virginia, 11 February 1976, p. 7.